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# AFRICAN FORESTRY AND WILDLIFE COMMISSION

## TWENTIETH SESSION

**Nairobi, Kenya, 1 - 5 February 2016**

## FORESTS AND WATER RESOURCES MANAGEMENT IN AFRICA

1. Forests play an important role in both the protection and conservation of natural resources including soil and water resources (FRA, 2015). Forests are known to ensure proper water distribution and soil health maintenance, resulting in the infiltration and purification of rainwater that feeds into aboveground and underground water systems, as well as the promotion of precipitation through the evapotranspiration process. There is increasing evidence that deforestation in the Congo Basin is having a drying effect on the Nile Basin (Sheil & Murdiyars, 2009; Spracklen et al. 2012; Ellison et al., 2012). According to global estimates, forested watersheds and wetlands provide 75 percent of our freshwater resources (Shvidenko et al., 2005<sup>1</sup>). Managing forests for water resources can provide increased food and water security, as well as increased landscape and community resilience in the face of climate change, particularly from droughts and floods. Therefore, there should be increased consideration of the role of forests in the greater landscape and of watershed management.

2. Management of a watershed includes any human action that considers the management and conservation of all available natural resources in a comprehensive way, and by recognizing links between natural resources management, agricultural production and livelihoods (FAO, 2013). It provides a framework to organize different land uses (forestry, pasture, agriculture) in an integrated way and by following a landscape approach that promotes the involvement of local communities, politicians and technicians in decision making processes. Watershed management is most often associated to mountain areas or highland plateaus, but the concept can be used more broadly in the context of provision of ecosystem services such as high quality water, erosion control, river bank stabilization and sedimentation prevention.

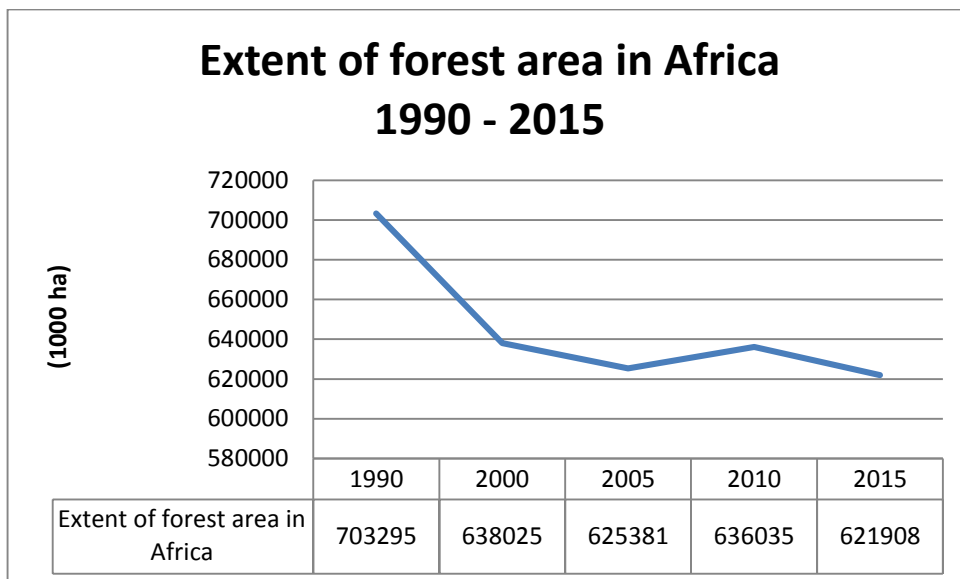
<sup>1</sup> <http://www.millenniumassessment.org/documents/document.290.aspx.pdf>

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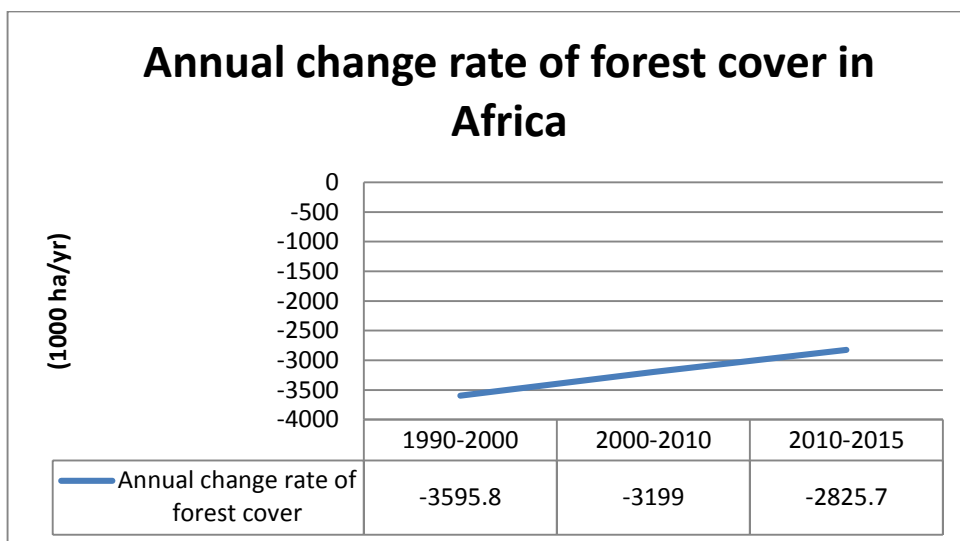
3. It is increasingly recognized that both the availability and the quality of water are strongly influenced by forests and that water resources in many regions (including Africa) are under growing threat from overuse, misuse and pollution. In order to address some of these challenges, there is an urgent need for better understanding the interactions between forests, trees and water, including at the watershed and landscape scales, for awareness raising and capacity building in forest hydrology, and for embedding this knowledge and research findings in policies and practice.

### I. Trends and characterization of forest and water resources management in Africa

4. According to the Forest Resource Assessment of 2015 (FRA 2015), Africa experienced large forest area loss equivalent to 81 million ha, in a period of 25 years, which is explained by the increase in population and forest conversion to other land uses, primarily for agricultural purposes. The loss represents about 11.5 percent of forest area in 1990.



5. Looking at the annual rate of change as depicted by the FAO FRA 2015 report, there is a trend emerging showing signs of reduced annual forest cover loss. This means that countries now understand the importance of forest while moving towards halting extensive forest losses, with the aim of redeeming forest cover.



6. When it comes to forest area primarily designated for soil and water protection, most countries in the African region reported a positive increase in forest area with significant increases seen between 2000 and 2005. Forest areas that conserve soil and water resources have remained relatively steady in the last 10 years as shown in the table, derived from FAO FRA 2015, below.

Region	Area of forest designated for soil and water protection (1000 ha)				
	1990	2000	2005	2010	2015
Africa	32500	30361	39750	39521	38834

7. Examples of forests managed for water resources, using a watershed management approach in the African region, namely the Mau forest and Bale Mountains of East Africa, and the Fouta Djallon Highlands of West Africa are presented below:

#### **Mau forest**

8. The Mau forest is located in the Rift Valley of Kenya and is the largest indigenous montane forest in East Africa covering an area size of 320 000 ha. This forest complex serves as an important water catchment area from which many rivers flow, including those that provide Lake Victoria with 60 percent of its water. The forest complex is also of great importance to its fauna and flora habitats as well as human population that depends on the quality of water that flows on river banks.

9. The Government of Kenya is implementing a restoration program in which the developed strategic management plan ensures the following tasks to be undertaken:

- Boundary surveys and issuance of title deeds for forest blocks
- Monitoring and enforcement
- Livelihood support and development
- Public awareness and community sensitization
- Restoration and replanting of degraded sites

#### **Bale Mountains**

10. The Bale Mountains are located in the Oromia Region of Southeast Ethiopia, and it is surrounded by a unique landscape that encompasses priority forest areas, mountains, valleys, grasslands and agricultural lands. It is the largest afro-alpine habitat on the African continent which

forms the Bale massif watershed that replenishes water and sustains livelihoods of millions of people in both highland and lowlands of Ethiopia, northern Kenya and Somalia.

11. The Oromia Regional Government is currently focusing on improving the conservation and management of the area (Bale Mountains). An intervention programme put in place looks into securing the expansion of conservation and development initiatives, and involves local communities ensuring the sustainable management of the area. The Federal Government's implementation of policies related to food security and rural development, as well as the country's protected area systems plan ensures an enabling environment for relevant zonal and woreda (Districts) government offices, and other relevant stakeholders to promote community-based natural resource management, participatory development and livelihood diversification. The aim is to have:

- A stronger government and community institutional capacity for sustainable natural resource management
- A diversified natural resource based livelihoods for communities
- An improved legal, policy and frameworks for Community Based Natural Resource Management and protected areas

### **Fouta Djallon Highlands**

12. The Fouta Djallon Highlands (FDH) is a mountain area located in West Africa and shared between five countries namely Guinea, Guinea- Bissau, Mali, Senegal and Sierra Leone. The highlands are an important source of West Africa's major rivers and national basins, but significantly to two major trans-boundary river basins, specifically the Niger and the Senegal Rivers.

13. Eight countries depending on water resources derived from the highlands, namely Gambia, Guinea, Guinea-Bissau, Mali, Mauritania, Niger, Senegal and Sierra Leone have been involved since 1981 in a regional programme for the Integrated Development of the FDH established by the African Union. In 2009 a Global Environment Facility project, implemented jointly by FAO, UNEP and the African Union, was established to ensure the conservation and sustainable management of natural resources, and livelihoods sustenance for the rural population. It looked into:

- Enhanced regional collaboration in the planning and implementation of natural resources management activities.
- Improved natural resources management and livelihoods in the FDH through support to integrated management activities.
- Increased stakeholder capacity in the integrated management of natural resources through training of local institutions, community based organizations and other stakeholders.
- Project management structures operational and effective, monitoring and evaluation system set up to measure outputs, outcomes and impact of the project, dissemination of information.

## **II. Recommendations for the way forward**

14. Interferences such as the extensive removal of forest cover result in the exposure of soils that changes the downstream flow increasing the risk of floods and other negative externalities, such as drought. Therefore, pressures on natural resources, and the unregulated exploitation of forests, can threaten food and water security. The examples of important watershed management areas in Africa show that with the proper interventions put in place, negative interferences can be halted and reversed resulting in improved water availability (quality and quantity). Steps to be taken should address ineffective land use management plans, agricultural land and pasture expansion, and to ensure sustainable flow of benefits to communities at large, including water resources for domestic, agricultural and ecological needs.

15. Moreover, improved forest and watershed management for the conservation of soil and water resources will contribute to the achievement of the Sustainable Development Goals, in particular 6 and

15, which explicitly recognize the role of forests in providing and regulating water. A new Forest and Water Programme at FAO has been established based on Forests and Water – a five-year action plan, which was developed by stakeholders of the International Forests and Water Agenda to promote integrated forest-water science, policy and management. The Programme provides technical assistance to countries interested in the interactions between forest, trees and water and how to improve water resources through forest and watershed management, including addressing issues related to water scarcity.

16. As a way forward, it would be important to increase concerted efforts:

- To preserve forested watersheds in order to increase the supply of quality fresh water for domestic, industrial, agricultural and ecological needs of countries, in both upstream and downstream areas.
- To increase adaptation to climate change by putting in place mechanisms that maximise forest benefits affecting water resources and ecosystem functions, which reinforces the need to integrate programmatic approaches that promote sustainable forest management.
- To acknowledge that interactions between trees, forests and water are vital for addressing critical issues, such as food security, access to quality water, climate change and landscape resilience, therefore a greater recognition must be given to these processes by national governments.
- To develop institutional mechanisms to enhance synergies and collaboration in forests and water issues, so as to implement and enforce national and regional action programmes where decision-makers and experts in the water and forestry sectors could increase their cooperation.

### **III. POINTS FOR CONSIDERATION**

17. The Commission may wish to invite countries to:

- further mainstream forest resources management in water related initiatives and projects;
- undertake valuation of forest environmental services in watershed areas with a view to further enhancing the role of forests in their sustainable management.

18. The Commission may wish to recommend that FAO support countries by:

- conducting assessment of forest restoration needs in important watershed areas and support the development of national restoration initiatives as part of national plans and strategies;
- mobilizing resources in support of forest restoration programmes in watershed areas;
- raising awareness on the interaction between forest and water sources for food security, quality water, climate change adaptation, and resilience.